REMARKS/ARGUMENTS

Claims 1-39 are pending in this application. Claims 1-8 are rejected under 35 U.S.C. 102(b), as being anticipated by U.S. Patent No. 4,980,643 ("Gianzero"). Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gianzero in view of Minerbo (US 6,304,086). Claims 10-39 are objected to as being dependent on rejected base claims. Applicant respectfully traverses each of those rejections.

Regarding the §102 and §103 rejections, Applicant contends the claims as originally filed are novel and non-obvious in view of the prior art references cited. Applicant respectfully disagrees with the Examiner's conclusion that Gianzero discloses azimuthally-rotating the logging instrument, or, while the logging instrument is rotating, activating the first transmitter antenna or directionally measuring the first voltage signals as required by the claims. Gianzero discloses a wireline tool and, as such, any azimuthal rotation of the logging instrument is random and uncontrolled. The downhole sonde portion 14 of logging tool 10 is supported by conventional logging cable 18. (See '643, col. 4, ll.47-50 and Fig. 1.)

The Examiner cites the '643 patent, column 5, lines 1-62 to support the proposition that Gianzero discloses that the sonde is azimuthally rotated. Applicant believes the Examiner intended to refer to column 6, but, regardless, Gianzero's disclosure does not support the Examiner's position. The Examiner seems to have seized upon the 'rotation language' found in column 6 to conclude sonde 14 is rotated. That language does not, however, refer to a driven azimuthal rotation of sonde 14. The rotation language in Gianzero describes a mathematical transformation between two coordinate systems. Gianzero describes one coordinate system fixed to sonde 14, and another coordinate system fixed to earth formations 50, 51. The use of multiple coordinate systems is a mathematical convenience because certain physical quantities of a body such as moments of inertia and magnetic dipole moments are generally simpler to express in a system fixed relative to the body. However, before using quantities expressed in different coordinate systems in computations, those quantities must be expressed in a common coordinate system.

Figure 4 in Gianzero shows the two coordinate systems used as having a common origin, but rotated relative to each other. The rotation from the unprimed system (the formation system)

to the double prime system (the sonde system) can be considered as a sequence of two rotations. The first rotation is a rotation about the unprimed y-axis through a clockwise rotation of an angle α. The second rotation is about the z-prime axis through a clockwise rotation of an angle β. (Note, the y-double prime and y-prime axes appear to be mislabeled in Figure 4, as are the x-prime and x-double prime axes. Applicant believes the unprimed y- and y-prime axes are the same, and, similarly, the z-prime and z-double prime axes are the same.) Each of those single axis rotations can be expressed as a rotation matrix and the product of those rotation matrices yields the transformation matrix from the unprimed system to the double prime system. The transformation matrix that converts a vector expressed in unprimed coordinates to the same vector expressed in double prime coordinates is given in equation (2-6) of Gianzero (though Gianzero refers to it as a single prime system). The point, however, is that the rotation described is that of coordinate systems, not of the logging tool itself. Thus, Gianzero fails to disclose the azimuthal rotation of the logging tool and therefore fails to anticipate claim 1 of the present invention. Because independent claim 1 is not anticipated, dependent claims 2-8 are likewise not anticipated.

The present invention is not obvious over Gianzero in view of Minerbo because, for the reasons stated above, Gianzero does not disclose all the required elements, and Minerbo fails to supply those missing elements. Thus, the Examiner has not made a *prima facie* case of obviousness, as required to maintain the objection.

Applicant appreciates the Examiner's indication that claims 10-39 would be patentable if rewritten to include the indicated limitations. Applicant declines to make such amendments at this time because Applicant believes the base claims are in condition for allowance for the reasons stated above.

The Examiner states the information disclosure statement ("IDS") filed February 28, 2006 fails to comply with 37 C.F.R. 1.98(a)(3) because it does not include a concise explanation of the relevance of the Russian document SU998995. Applicant respectfully submits the IDS does comply with the regulations because Applicant has disclosed all it knows about the document. The document was cited by a foreign patent office, but no translation of any kind was provided. The Eurasian Search Report, a copy of which was submitted, appears to consider the document as one describing the general state of the art which is not considered to be of particular relevance.

This is based on the "A" categorization assigned by the Eurasian search authorities and the apparent correspondence to categorization used in International Search Reports. Thus, Applicant does not consider the document to be material to patentability, but cites it in the IDS to fully comport with its duty of candor.

For the foregoing reasons, Applicant submits that all the claims are in condition for allowance and request reconsideration of the present application and that the application be passed to issuance.

The Commissioner is hereby authorized to charge any fees or credit any overpayments related to this response to Deposit Account No. 190610.

The undersigned is available for consultation at any time, if the Examiner believes such consultation may expedite the resolution of any issues.

Respectfully submitted,

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Bryan L White
Registration No. 45,211
Schlumberger Technology Corporation
Sugar Land Product Center
200 Gillingham Lane, MD-9
Sugar Land, Texas 77478
(281) 285-6493
(281) 285-8821 Fax